AMENDMENTS TO THE DRAWING:

The attached sheet of drawings includes changes to the drawing. This sheet replaces the original sheet.

Attachments: Replacement Sheet

Annotated Marked-Up Drawing Sheet

REMARKS

Claims 1-36 are pending in the application. Applicants respectfully request reconsideration, reexamination, and allowance of the above-captioned application.

DRAWING:

As requested by the Examiner, proposed drawing corrections which the carding element schematically are submitted herewith. The card element is now represented by reference numeral 9 and is located in the air doffing apparatus 1.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection to the drawing.

ART REJECTIONS:

Page 2 of the Office Action set forth a rejection of Claims 1-3, 7-10, 29, and 31 as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Ruffo et al.*, U.S. Patent No. 4,018,646. Page 6 of the Office Action sets forth a rejection of Claims 4-6 and 11-15 as being obvious over *Ruffo et al.*

Claim 1 is directed to an absorbent material which includes a mat of dry-laid cellulose fibres integrated with an air-laid non-woven gauze comprised of reinforcing textile fibres. Claim 1 further recites that the air-laid non-woven gauze is formed with an air-doffing apparatus having at least one carding element to provide a porous, penetrable gauze layer, and that the absorbent material is obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres so that the cellulose fibres achieve a sufficient bonding with the textile fibres without any bonding agent.

Claim 29 is directed to an absorbent structure which includes a cellulose fibres reinforced with textile fibres. Claim 29 further recites that the absorbent structure has been produced by defibrating and mat-forming an absorbent material which includes a mat of dry-laid cellulose fibres integrated with an air-laid non-woven gauze comprised of reinforcing textile fibres. Claim 29 further recites that the air-laid non-woven gauze is formed with an air-doffing apparatus having at least one carding element and that the absorbent material is obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres so that the cellulose fibres achieve a sufficient bonding with the textile fibres without any bonding agent.

As discussed in the specification at page 4, the claimed process of air-laying the textile fibers using an air-doffing apparatus having at least one carding element creates **a porous, easily penetrated non-woven gauze**. One reason is that the carding element aligns the textile fibers so that they are generally aligned in one direction. Further, the carding element reduces the number of fiber clumps which are laid on the wire. As a result, the non-woven gauze is more easily penetrated by the short fibers, allowing the resulting mat to be sufficiently bonded without any bonding agent.

The absorbent material of the present invention is comprised of two layers:

(1) mat of dry-laid cellulose fibers; and

(2) a porous, penetrable gauze layer.

Ruffo does not teach such an invention. The Examiner asserts that the material of *Ruffo* appears to be the same as the claimed invention although it may not be produced in exactly the same way. The material of *Ruffo* is a different material made a different way.

Ruffo does not teach a porous, penetrable gauze layer. The gauze layer of the present invention is porous and penetrable to allow the cellulose fibers to effectively penetrate the gauze fiber interstices and form an integrated layer with the textile fibers without the need of a binder.

Ruffo teaches textile fibers that have been individualized by lickerins. Column 17, lines 53-64. Lickerins defibrate the fibers but only to a certain degree. Small chunks and bits of fiber are left within the layer that is air-laid. Moreover, the fibers are air-laid in a random pattern. This is an important difference that is further exemplified by the fact that *Ruffo* only teaches bonding techniques that require mechanical interlocking by means of needle looms, high pressure water streams and the such. Column 13, line 34 through Column 14, line 2.

The difference in non-binder bonding techniques demonstrates the difference in the claimed invention from the material taught by *Ruffo*.

Additionally, *Ruffo* only teaches a single layer material. That single layer may have varying composition from one face to the other, but it is one layer nonetheless. In fact, *Ruffo* teaches that preferably there is a substantially continuous fiber transition zone where there is no clear cut or distinct line of demarcation between fibers of the fabric, when the fabric is viewed in cross-section. Column 11, line 37 through Column 12, line 12. See

also Column 11, line 48 through Column 12, line 5, wherein it indicates that there is at least 5% of each fiber at each face of the web.

This single layer material of varying composition is much different from the presently claimed material. The presently claimed material has a porous, penetrable gauze bottom later with which cellulose fibers are integrated. Thus, the top face of the presently claimed material will be all cellulose fibers, whereas the top face of the *Ruffo* material has, at the least, 5% textile fibers. Column 11, line 48 through Column 12, line 5.

The material of *Ruffo* is different from the presently claimed material. *Ruffo* does not teach the porous, penetrable gauze layer. *Ruffo* also teaches a material with continuous distribution of textile and cellulose fibers with some of both fibers being present at each face.

For at least these reasons, claims 1 and 29 are neither anticipated nor obvious based on the disclosure of *Ruffo*.

Claims 2-3, 4-6, 7-10, 11-15, and 31 depend from either claim 1 or claim 29, and thus are at least patentable over Ruffo for the reasons set forth above with respect to claims 1 and 29.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-3, 4-6, 7-10, 11-15, 29, and 31 over *Ruffo*.

Claims 1-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura et al.*, U.S. Patent No. 3,984,898, in view of *Ruffo et al.*, U.S. Patent No. 4,018,646, and *Fehrer*, U.S. Patent No. 4,972,551.

The combination of *Matsumura*, *Ruffo*, and *Fehrer* does not teach or make obvious the present invention. As conceded by the Examiner, *Matsumura* does not teach that bonding occurs in the absence of a bonding agent, but instead employs a binder. The Examiner relies on *Ruffo* to cure this deficiency. Specifically, the Examiner relies upon *Ruffo* for the conclusion that mechanically interlocking the fibers with a needle loom would have been obvious to use in *Matsumura* to bind the web as an equivalent to using a binder. With due respect, the teachings of *Ruffo* do not cure the deficiency of *Matsumura*.

Ruffo does not teach that the use of a bonding agent and mechanically interlocking the fibers are "equivalent" methods of bonding fibrous webs. In fact, *Ruffo* teaches that the "particular type of bonding technique chosen will depend on various factors well-known to those skilled in the art, e.g. the type of fibers, the particular use of the products, etc." See Column 12, line 65 through Column 13, line 1. Thus, *Ruffo* does not state that the various bonding methods are equivalent or interchangeable. In fact, *Ruffo* teaches that one of skill in the art must consider the various factors relating to the webs and choose an appropriate bonding technique based on such particular factors. Accordingly, based on the above-mentioned teachings of *Ruffo*, one of ordinary skill in the art would not be motivated to substitute mechanical bonding with the adhesive bonding taught by *Matsumura*. The Examiner relies upon *Fehrer* only for the teaching of a carding element. Thus, *Fehrer* does not otherwise overcome the deficiency of the combination of *Matsumura* and *Ruffo*.

Moreover, the present invention describes a material that has a layer of porous, penetrable gauze. This is obtained by means of carded fibers.

First, such a material is not taught by *Matsumura*. The Examiner asserts that this is remedied by the teachings of *Fehrer*. Specifically, the examiner asserts that one of ordinary skill in the art would have been motivated to employ the apparatus of *Fehrer* to form the fabric of *Matsumura* because *Matsumura* teaches that carded fibers should be supplied to the air doffing apparatus. However, *Matsumura* does not teach that carded fibers should be supplied to the air doffing apparatus. Instead, when carding is mentioned, in Column 8, lines 35-38, it is stated that only a fiber lap was previously opened by carding. By the very nature of a fiber lap, the fibers will necessarily be pressed back together, negating most of the benefit obtained from the carding process. That is why *Matsumura* teaches the use of a lickerin to defibrate the fiber lap, which does not provide the porous, penetrable gauze of the present invention. Thus, *Matsumura* does not teach that carded fibers should be supplied to the air doffing apparatus. Therefore, it is improper to combine *Fehrer* with *Matsumura* to obtain the material of the present invention.

However, even if the carding apparatus of *Fehrer* was improperly combined with the teaching of *Matsumura*, the porous, penetrable gauze of the present invention would still not be obtained. This is because the method of *Matsumura* requires a seal roll to protect the textile mat from blow back. Column 8, lines 51-55. This seal roll compresses the textile mat so that the porous, penetrable gauze layer of the material of the present invention is not obtained.

Accordingly, claims 1 and 29 are clearly patentable over the combination of *Matsumura*, *Ruffo*, and *Fehrer*.

Claim 16 defines a method of producing an absorbent material that includes directly dry laying cellulose fibers onto a newly formed non-woven gauze of textile fibers to integrate the cellulose fibers with a non-woven gauze and form a mat, wherein the cellulose fibers achieve a sufficient bonding with the textile fibers without any bonding agent. However, as discussed above, the method taught by *Matsumura* relies upon the use of a binder to secure the layers together. The Examiner alleges that *Ruffo* teaches that one of ordinary skill in the art would substitute mechanical interlocking for adhesive binding. However, as set forth above, *Ruffo* does not teach this principle. In fact, *Ruffo* teaches that the particular method of binding, either mechanical or adhesive, is chosen depending upon the various factors. Since *Matsumura* has chosen adhesive binding, Applicants submit that *Ruffo* does not teach that one of ordinary skill in the art would substitute mechanical interlocking for the adhesive binding. Presumably, one of ordinary skill in the art has already determined that adhesive binding is better for the *Matsumura* process. Furthermore, as set forth above, *Fehrer* is not relevant to this point.

Moreover, as discussed above, one of ordinary skill in the art would not have modified the method of *Matsumura* with the apparatus of *Fehrer* to obtain the method of the present invention.

Accordingly, claim 16 is also patentable over the combination of *Matsumura*, *Ruffo* and *Fehrer*.

Claim 26 and 30 include language similar to that in claim 16, and are thus patentable over *Matsumura*, *Ruffo* and *Fehrer* at least for the reasons set forth above. The

remaining claims are dependent claims which depend from either 1, 16, 26, 29 or 30, and are thus also patentable over the applied prior art.

Claims 33-36 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura et al.*, U.S. Patent No. 3,984,898, in view of *Ruffo et al.*, U.S. Patent No. 4,018,646, and *Fehrer*, U.S. Patent No. 4,972,551, and further in view of WO 97/45083 to *Rosseland*.

Claims 33-36 depend from either claims 1 or 16 and are patentable over *Matsumura*, *Ruffo* and *Fehrer* at least for the reasons set forth above. The Examiner relies on *Rosseland* solely for the teaching that HTCMP and flash dried pulp can be employed to form airlaid nonwoven. Thus, *Rosseland* does not otherwise overcome the deficiency of the combination of *Matsumura*, *Ruffo* and *Fehrer*.

Accordingly, claims 33-36 are patentable over the combination of *Matsumura*, *Ruffo*, *Fehrer*, and *Rosseland*.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

All of the outstanding matters having been addressed, favorable action on the application is requested. Should the Examiner have any questions regarding this Amendment, or regarding the application in general, she is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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Annotated Marked-Up Drawing Sheet
A Textile Fibre Reinforced Absorbent Material
Anette BUSCHKA et al.
Application No. 09/870,517 Attorney Docket No. 000500-301